Claims

1. A method for upgrading liquefied waste plastics, the method comprising:

a **step (A)** of providing liquefied waste plastics (LWP) material,

optionally a **step (B)** of pre-treating at least part of the liquefied waste plastics (LWP) material to produce a pre-treated liquefied waste plastics (LWP) material,

a **step (C)** of blending the liquefied waste plastics (LWP) material or the pre-treated liquefied waste plastics (LWP) material or a combination thereof with a highly paraffinic material to obtain a cracker feed such that the cracker feed meets the requirements for chlorine content and olefins content of the steam cracker, and

a **step (D)** of steam cracking the cracker feed in a steam cracker to obtain a cracker product,

wherein the chlorine content of the liquefied waste plastics (LWP) material provided in step (A) is in the range of from 100 wt.-ppm to 4000 wt.-ppm, and

wherein the highly paraffinic material has a paraffin content of 60 wt.-% or more, relative to the total weight of the highly paraffinic material.

2. The method according to claim 1, wherein the cracker feed that meets the requirements for chlorine content and olefins content of the steam cracker has a chlorine content of 10 ppm by weight (wt.-ppm) or less, preferably 8 wt.-ppm or less, 6 wt.-ppm or less, 5 wt.-ppm or less, 4 wt.-ppm or less, or 3 wt.-ppm or less.

3. The method according to any one of the preceding claims, wherein the highly paraffinic material contains at least 90 wt.-% of compounds having 5 or more carbon atoms.

4. The method according to any one of the preceding claims, wherein the cracker feed that meets the requirements for chlorine content and olefins content of the steam cracker has an olefins content of 18.0 wt.-% or less.

5. The method according to any one of the preceding claims, wherein the pre-treatment step (B) comprises at least one of solvent extraction (extraction

medium is an organic solvent) and extraction with an aqueous medium (extraction medium is an aqueous medium).

6. The method according to any one of the preceding claims, wherein the pre-treatment step (B) comprises at least contacting the liquefied waste plastics material with an aqueous medium, wherein the aqueous medium is preferably an alkaline aqueous medium.

7. The method according to any one of the preceding claims, wherein the pre-treatment step (B) is carried out at a temperature of 150°C or more, preferably 200°C or more, more preferably 220°C or more, 240°C or more or 260°C or more, and/or wherein the pre-treatment step (B) is carried out at a temperature of 450°C or less, preferably 400°C or less, 350°C or less, or 300°C or less.

8. The method according to any one of the preceding claims, wherein the liquefied waste plastics (LWP) material provided in step (A) is a fraction of liquefied waste plastics.

9. The method according to any one of the preceding claims, wherein the liquefied waste plastics (LWP) material provided in step (A) has a 5% boiling point of 25°C or more and a 95% boiling point of 550°C or less, preferably a 5% boiling point of 30°C or more and a 95% boiling point of 500°C or less, more preferably a 5% boiling point of 35°C or more and a 95% boiling point of 400°C or less, even more preferably a 5% boiling point of 35°C or more and a 95% boiling point of 360°C or less.

10. The method according to any one of the preceding claims, wherein the highly paraffinic material is at least one of a naphtha fraction, a middle distillate fraction, a VGO fraction or a LPG fraction, or a mixture of two or more thereof, preferably at least one of a naphtha fraction and a middle distillate fraction.

11. The method according to any one of the preceding claims, wherein the highly paraffinic material has a paraffin content of 65 wt.-% or more, preferably 70 wt.-% or more, 75 wt.-% or more, 80 wt.-% or more, 85 wt.-% or more, 90

wt.-% or more, 93 wt.-% or more, or 95 wt.-% or more, relative to the total weight of the highly paraffinic material.

12. The method according to any one of the preceding claims, wherein the highly paraffinic material has an i-paraffin content of 5 wt.-% or more, relative to the summed amount of n-paraffins and i-paraffins in the highly paraffinic material taken as 100 wt.-%, and preferably has an i-paraffin content of 8 wt.-% or more, more preferably 10 wt.-% or more, 15 wt.-% or more, 20 wt.-% or more, 25 wt.-% or more, 30 wt.-% or more, 35 wt.-% or more, 40 wt.-% or more, 45 wt.-% or more, 50 wt.-% or more, relative to the summed amount of n-paraffins and i-paraffins in the highly paraffinic material taken as 100 wt.-%.

13. The method according to any one of the preceding claims, wherein the highly paraffinic material has a n-paraffin content in the range from 50 wt.-% to 25 wt.-%, preferably 45 wt.-% to 30 wt.-%, relative to the summed amount of n-paraffins and i-paraffins in the highly paraffinic material taken as 100 wt.-%.

14. The method according to any one of the preceding claims, wherein the highly paraffinic material has a naphthenes content in the range from 0.01 wt.-% to 15.00 wt.-%, preferably 0.01 wt.-% to 5.00 wt.-%, relative to the total weight of the highly paraffinic material.

15. The method according to any one of the preceding claims, wherein the highly paraffinic material is a renewable material.

16. A mixture of hydrocarbons obtainable by the method according to any of the claims 1 to 15.

17. Use of the mixture of hydrocarbons according to claim 16 for producing chemicals and/or polymers, such as polypropylene and/or polyethylene.